REMARKS

The Office Action dated August 18, 2008 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Claims 1-22 are currently pending and are respectfully submitted for consideration.

As a preliminary matter, the Office Action Summary indicated that the specification was objected to. However, the Detailed Action did not include any such objection to the specification. Accordingly, Applicants respectfully request clarification of the status of the objection to the specification.

Claims 1, 2, 11, and 12 were rejected under 35 U.S.C. §102(e) as being anticipated by Johansson (U.S. Patent Pub. No. 2002/0080752). This rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-10 are dependent, recites a routing method for routing data packets from a source terminal to a destination terminal via at least one communication network. The at least one communication network comprising at least one mobility agent entity for each of the terminals. The method includes establishing a route from the source, via at least one first mobility agent associated to said source and at least two consecutively arranged second mobility agents associated to said destination, to said destination, deciding that said route is to be optimized, and upon said decision, rerouting said route from one of said at least one first mobility agents directly to one of

the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route.

Claim 11, upon which claims 12-20 are dependent, recites a routing system for routing data packets from a source terminal to a destination terminal via at least one communication network. The at least one communication network includes at least one mobility agent entity for each of the terminals. The system comprises a route establisher configured to establish a route from the source, via at least one first mobility agent associated to said source and at least two consecutively arranged second mobility agents associated to said destination, to said destination. The system further includes a decision unit configured to decide that said route is to be optimized, and a rerouter configured to perform, in response to said decision, a rerouting of said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route.

Claim 21 recites a routing system for routing data packets from a source terminal to a destination terminal via at least one communication network. The at least one communication network comprising at least one mobility agent entity for each of said terminals. The system includes route establishment means for establishing a route from the source, via at least one first mobility agent associated to said source and at least two consecutively arranged second mobility agents associated to said destination, to said destination, decision means for deciding that said route is to be optimized, and rerouting

means for performing, in response to said decision, a rerouting of said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route.

Embodiments of the invention therefore provide an advantageous routing method which simultaneously provides for optimal routing and for location privacy. As a result, the location information of the destination is not leaked to the source or other non-trusted entities in the network.

As will be discussed below, the cited prior art fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Johansson discloses a route optimization technique requiring no awareness of the Mobile IP protocol by a Correspondent Node when forwarding traffic using the shortest path between a Mobile Node and the Correspondent Node in a visiting domain. Traffic between the mobile node 3 and the correspondent node CN 4a, i.e. the host situated on the home network 9, will be routed through the mobile IP tunnel 30a over the logical interface 32a by the foreign agent 2. Similarly, the datagrams sent from/to the correspondent node CN 4d on the Internet are tunneled to the home agent 1. The home agent 1 then can advertise an aggregate route for the whole home network 9 towards the Internet instead of advertising mobile node 3 specific routes from individual foreign agents 2.

Applicants respectfully submit that Johansson fails to disclose or suggest all of the elements of the present claims. For example, Johansson does not disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," as recited in claims 1 and 11. The Office Action appears to have taken the position that home agent 1 and foreign agent 2b correspond to the "at least two consecutively arranged second mobility agents" recited in the claims (see Office Action, page 6). Applicants respectfully disagree with this assertion. The home agent 1 and foreign agent 2b of Johansson are not consecutively arranged and are not both associated to a destination.

In the response to arguments section of the Office Action, it is asserted that Johansson discloses at least two consecutively arranged second mobility agents in figs. 3a to 3b and paragraphs 0074, 0077. With respect to figure 3a, Johansson merely disclose that traffic between the mobile node 3 and the correspondent node CN 4a are routed through the mobile IP tunnel 30a, and that the routing is performed by the foreign agent 2 (Johansson, paragraph 0075). Johansson does not disclose that the foreign agent and home agent are consecutively arranged and, in fact, it is clear from figure 3a that they indeed are not consecutively arranged. With respect to figure 3b, Johansson discloses that, "[w]hen the mobile node 3 deregisters at the visited network 8a, the foreign agent 2a removes its mobile node 3 route 3'. However, when the mobile node registers at the visited network 8b, the foreign agent 2b will start to advertise the mobile node 3 route 3' with a lower cost than the home agent 1 on the interface 32e" (Johansson, paragraph 0077). Thus, Johansson only discloses a foreign agent in each of the respective visited

networks 8a, 8b. Johansson fails to disclose consecutively arranged second mobility agents. Accordingly, Johansson does not disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," as recited in the present claims.

Furthermore, Johansson fails to disclose or suggest "rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 1 and similarly recited in claims 11 and 21. Rather, Johansson only discloses that traffic sent from mobile node 3 to correspondent nodes 4b and 4c or traffic sent from correspondent nodes 4b and 4c to mobile node 3 does not need to be routed through the home agent because the correspondent nodes 4b and 4c are located at the local site, i.e. on the same visited network (Johansson, paragraph 0075). Johansson does not disclose any type of rerouting in this regard. In addition, no intermediate mobility agent is provided in the route between the mobile node 3 and correspondent nodes 4b and 4c (see Johansson, Fig. 3A). Therefore, Johansson cannot disclose "rerouting said route...such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route."

In the response to arguments section, the Office Action cited paragraphs 0020, 0066, and 0068 of Johansson as allegedly teaching the claimed rerouting. However, these sections of Johansson merely discuss route optimization in general and do not mention any specifics regarding at least one intermediate mobility agent in the route that

is bypassed in the resulting rerouted route. In fact, Johansson teaches that, when traffic is being sent from the mobile node 3 to the home network, the traffic is routed through the home agent (Johansson, paragraph 0074). Johansson does not disclose any rerouting of this traffic. Thus, Applicants respectfully submit that Johansson fails to disclose or suggest "rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 1 and similarly recited in claim 11. Applicants therefore, respectfully request that the rejection of claims 1 and 11 be withdrawn.

Claims 2 and 12 are dependent upon claims 1 and 11, respectively. As such, claims 2 and 12 should be allowed for at least their dependence upon claims 1 and 11, and for the specific limitations recited therein.

Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (U.S. Patent No. 6,915,325). This rejection is respectfully traversed for at least the following reasons.

Claim 21 recites a routing system for routing data packets from a source terminal to a destination terminal via at least one communication network. The at least one communication network comprising at least one mobility agent entity for each of said terminals. The system includes route establishment means for establishing a route from the source, via at least one first mobility agent associated to said source and at least two consecutively arranged second mobility agents associated to said destination, to said

destination, decision means for deciding that said route is to be optimized, and rerouting means for performing, in response to said decision, a rerouting of said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route.

Lee discloses a method and program code for communicating with a mobile node through tunnels. Location update messages for a mobile node are made interceptible by routers which form tunnels for communication with the mobile node. A correspondent agent intercepts a Binding Update with a Router Alert and binds the address of the mobile node with a care of address for the mobile node provided in the Binding Update. The correspondent agent will thereafter intercept messages from its correspondent host destined for the mobile node and redirect them to the care of address thereby bypassing the home agent of the mobile node. A border router intercepts a Registration Request with Router Alert and binds the address of the mobile node with a care of address for the mobile node. If a binding existed previously, then the border router terminates the Request. Otherwise, the Request is forwarded to the home agent of the mobile node after substituting its own address for the care of address.

Applicants respectfully submit that Lee fails to disclose or suggest all of the limitations of claim 21. For example, Lee does not disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," and "rerouting means for performing, in response to said decision, a rerouting of said route

from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 21.

Rather, Lee teaches that "[b]y programming a correspondent agent 60 to recognize a Binding Update when a Router Alert is included, the correspondent agent 60 will intercept the Binding Update with Router Alert and take steps to form a tunnel to the mobile node. The correspondent agent 60 terminates the Binding Update and does not forward it to the correspondent host 50 to which it was addressed. To form a tunnel, the correspondent agent binds the mobile node address with the care of address received in the location update message. With the tunnel in place, messages from the correspondent host 50 meant for the mobile node 10 are identified by the correspondent agent 60 and redirected by the correspondent agent 60 to the care of address. Thus, the message travels through the tunnel rather than the home agent 30" (Lee, Column 4, lines 4-18). Thus, Lee discloses that messages from the correspondent host intended for the mobile node are redirected to the care of address of the mobile node, and do not travel through the home agent.

In contrast, claim 21 recites that the route from one of the first mobility agents is rerouted directly to one of the consecutively arranged second mobility agents such that the intermediate mobility agent is bypassed. Lee fails to disclose such a configuration. Indeed, Lee does not even disclose or suggest at least two consecutively arranged second

mobility agents associated to said destination. Additionally, for at least this reason, it would not have been obvious to a person of skill in the art to modify Lee to yield the claimed invention since Lee does not disclose at least two consecutively arranged second mobility agents associated to said destination.

Therefore, Lee fails to disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," and "rerouting means for performing, in response to said decision, a rerouting of said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 21.

Claims 1, 2, 11, and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Leung (U.S. Patent No. 6,195,705) in view of Ramjee (U.S. Patent No. 6,842,462). The Office Action took the position that Leung discloses all of the elements of the claims, with the exception of at least one intermediate mobility agent in the route being bypassed in the resulting rerouted route. The Office Action then cited Ramjee as allegedly curing this deficiency in Leung. This rejection is respectfully traversed for at least the following reasons.

Leung discloses a method and apparatus for automatically backing up a Home Agent in Mobile IP. The method includes determining that an active Mobility Agent, with which the standby Mobility Agent shares a virtual IP address known to a Mobile Node, is no longer acting as a Mobility Agent for the Mobile Node. The method of

Leung further includes assuming the role of active Mobility Agent for the shared virtual IP address, thereby handling a registration from the Mobile Node, and sending a list of registrations currently handled by the active Mobility Agent to a new standby Mobility Agent.

Ramjee discloses a General Packet Radio Service (GPRS) Accessed Extended Mobile Internet Protocol (EMIP) [G-EMIP] network for wireless mobile device access to external packet data networks. Domains are defined to incorporate a subnet of standard GPRS and EMIP network entities accessed through a Domain Router. Packet access at the radio interface is provided using the base station portion of a GPRS network. Wireless link specific processing is relegated to this potion of the G-EMIP network. EMIP is utilized as a backbone network to provide mobility and service management and interconnection to external networks. A GPRS-IP Interworking entity (GII) interworks IP and GPRS protocols between GPRS and IP addressable network entities. Mobility-related functionality is handled at the IP layer. Mobile IP is used to support the macro-mobility and Handoff-Aware Wireless Access Internet Infrastructure (HAWAII) is used to support micro-mobility and paging. The Domain Router provides packet service management and interacts with a Home Location Register/Authentication Center, which provides GRPS registration, authentication and encryption.

Applicants respectfully submit that the combination of Leung and Ramjee fails to disclose or suggest all of the elements of the present claims. For example, the combination of Leung and Ramjee does not disclose or suggest "at least two

consecutively arranged second mobility agents associated to said destination," as recited in claims 1 and 11. The Office Action took the position that Leung discloses this limitation of the claims. In particular, the Office Action cited the foreign agent 10 of Leung as allegedly corresponding to the "at least two consecutively arranged second mobility agents" (see Office Action, page 10). Applicants submit that this is obviously an incorrect reading of the claims. The foreign agent 10 of Lueng is clearly a single agent. Leung does not disclose at least two foreign agents and, as a result, does not disclose any consecutively arranged mobility agents associated to the destination. Ramjee does not cure this deficiency in Leung. Therefore, the combination of Leung and Ramjee fails to disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," as recited in claims 1 and 11.

Furthermore, the combination of Leung and Ramjee does not disclose or suggest "rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 1 and similarly recited in claim 11. Since, as discussed above, Leung and Ramjee do not disclose at least two consecutively arranged second mobility agents, it follows that the combination of Leung and Ramjee cannot disclose or suggest rerouting the route directly to one of the at least two consecutively arranged second mobility agents. In the response to arguments section, the Office Action stated that Ramjee discloses bypassing the mobile device's home network, which "is treated as rerouting the

route by the examiner" (Office Action, page 3). Applicants respectfully submit, however, that the claims do not simply recite rerouting the route. Rather, as outlined above, claims 1 and 11 recite a specific manner of rerouting, and, in particular, "rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route." Leung and Ramjee, whether considered individually or combined, do not disclose or suggest such a rerouting.

Accordingly, the combination of Leung and Ramjee also does not disclose or suggest this element of the claims. Thus, the combination of Leung and Ramjee do not render claims 1, 11, and 21 as obvious. Applicants therefore respectfully request that the rejection of claims 1 and 11 be withdrawn.

Claims 2 and 12 are dependent upon claims 1 and 11, respectively. As such, claims 2 and 12 should be allowed for at least their dependence upon claims 1 and 11, and for the specific limitations recited therein.

Claims 3-8 and 13-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johansson in view of Forslow (U.S. Patent No. 6,973,057). This rejection is respectfully traversed for at least the following reasons.

Johansson is discussed above. Forslow discloses a public mobile access data network which provides a mobile node data access to the Internet and data access to the mobile node from the Internet even when a point of attachment of the mobile node to the

public mobile access data network changes. A public mobility management service is provided to locate mobile nodes so that the Internet is aware of the mobile node's current point of attachment. he public mobile access service is implemented using a home agent/foreign agent model where the home and foreign agents transfer data packets over the public mobile access network via a data tunnel.

Claims 3-8 and 13-18 are dependent upon claims 1 and 11, respectively, and inherit all of the limitations thereof. Additionally, as discussed above, Johansson fails to disclose or suggest all of the elements of claims 1 and 11. Forslow does not cure the deficiencies in Johansson as Forslow also fails to disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," and "rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 1 and similarly recited in claim 11. As such, the combination of Johansson and Forslow fails to disclose or suggest all of the elements of claims 3-8 and 13-18.

Claims 3, 4, 6, 8-10, 13, 14, 16, and 18-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johansson in view of Karagiannis (U.S. Patent Pub. No. 2002/0015395). This rejection is respectfully traversed for at least the following reasons.

Johansson is discussed above. Karagiannis discloses a method and system for inter-operability between mobile IP and RSVP during route optimization. A

correspondent host that needs to begin a real-time packet-data session with a mobile node sends a mobile IP binding request message to a home agent of the mobile node. The correspondent host does not send any further messages until it has received a binding update message in response to the binding request message. Upon receipt of the binding update message, the correspondent host knows a care-of address of the mobile node. A binding to the care-of address is created responsive to receipt of the binding update message. An RSVP PATH message is sent by the correspondent host responsive to receipt of the binding update message. The RSVP PATH message explicitly binds a data path of a packet flow to the mobile node. The correspondent host perceives a RSVP RESV message in response to the RSVP PATH message.

Claims 3, 4, 6, 8-10, 13, 14, 16, and 18-20 are dependent upon claims 1 and 11, respectively, and inherit all of the limitations thereof. Additionally, as discussed above, Johansson fails to disclose or suggest all of the elements of claims 1 and 11. Karagiannis does not cure the deficiencies in Johansson as Karagiannis also fails to disclose or suggest "at least two consecutively arranged second mobility agents associated to said destination," and "rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route," as recited in claim 1 and similarly recited in claim 11. As such, the combination of Johansson and Karagiannis fails to disclose or suggest all of the elements of claims 3, 4, 6, 8-10, 13, 14, 16, and 18-20.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-21 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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